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Fuel cells help power base

Electricity, heat will be hydrogen-powered at Selfridge; home use is several years away

By Gene Schabath / The Detroit News

HARRISON TOWNSHIP — Selfridge Air National Guard Base showed off a fuel cell system Tuesday that provides cleaner, more efficient electricity to its fire and rescue station and could become widely used in homes in the next six years.

The hydrogen-powered fuel cell system was installed in November. Selfridge is one of 25 sites across the country conducting demonstrations of the new technology.

The U.S. Army Corps of Engineers gave the base a $300,000 grant to cover installation and operations costs for one year, Tom Bregar, director of business development for DTE Energy Technologies, said during the air base demonstration. At the end of the first year, base officials can keep the system running by paying for gas themselves.

Improvements to the technology will make the fuel systems more affordable in the future, said David Rollins, market manager for Power Plug Inc., a Latham, N.Y., manufacturer and distributor of fuel cells partly owned by DTE Energy.

Fuel cell systems could be installed in homes right now in areas where electricity is not available, but the technology is too expensive for mainstream use and "more like a concept car," Bregar said.

A hydrogen-fuel system would run $8,000 for an 1,800-square-foot home, Rollins said.

"We've had several residential area demonstration projects in Detroit, but it will be about 2010 before we get to the mass market," Bregar said.

Doug Skrzyniarz, 27, of Sterling Heights, said he is excited about the prospect of fuel cells being used for homes, cars and businesses.

"I'd like to have it in my house," he said. "It would be cleaner and I wouldn't have to worry about a blackout."

The technology installed at Selfridge in November consisted of two 5-kilowatt fuel-cell units that resemble 5-foot-tall air conditioners.

The Selfridge system provides power to the 8,000-square-foot fire and rescue station.

The hydrogen used to create electricity is produced from natural gas. The advantage of using the hydrogen fuel cell system is that it is cleaner and more efficient than fossil fuels such as oil or coal.

The selling point of fuel cell technology in the future will be its reliability, "especially in areas where (electrical) grids are unreliable," Rollins said.

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How fuel cells work

* The molecules in natural gas are separated and the hydrogen produced by this process moves across hundreds of steel plates inside the fuel cell system, and when combined with oxygen, produce electricity.

* An inverter changes the electricity from direct current to alternating current and that is fed into the building's wiring system.

* Waste heat captured in cylinders during the making of hydrogen is used to provide hot water.

* Instead of producing harmful emissions, such as carbon dioxide, the fuel cell system emits only water vapor.

Source: DTE Energy Technologies